

TENT COOPERATION TREATY

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NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C. 20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

| | |
|--|--|
| Date of mailing (day/month/year) 08 February 2000 (08.02.00) | |
| International application No. PCT/US98/12180 | Applicant's or agent's file reference 54250PCT9A |
| International filing date (day/month/year) 22 June 1998 (22.06.98) | Priority date (day/month/year) |
| Applicant FEICHTMEIER, Georg et al | |

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
22 December 1999 (22.12.99)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Diana Nissen

Telephone No.: (41-22) 338.83.38

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | | |
|---|---|---|
| Applicant's or agent's file reference 54250PCT9A | FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. | |
| International application No. PCT/US 98/ 12180 | International filing date (day/month/year) 22/06/1998 | (Earliest) Priority Date (day/month/year) |
| Applicant MINNESOTA MINING AND MANUFACTURING COMPANY et al. | | |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (see Box I).

2. ☐ Unity of invention is lacking (see Box II).

3. ☐ The international application contains disclosure of a **nucleotide and/or amino acid sequence listing** and the international search was carried out on the basis of the sequence listing

☐ filed with the international application.

☐ furnished by the applicant separately from the international application,

☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ Transcribed by this Authority

4. With regard to the **title**, ☒ the text is approved as submitted by the applicant

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this International Search Report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is:

Figure No. --- ☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 98/12180

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C09J163/00 C09J167/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C09J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X | DATABASE WPI Week 9135 Derwent Publications Ltd., London, GB; AN 91-256733 XP002090928 & JP 03 167283 A, 19 July 1991 see abstract --- | 1-4, 10 |
| A | US 4 778 253 A (SIGA NAOHITO ET AL) 18 October 1988 see claims 1-3 --- | 1 |
| A | EP 0 620 259 A (MINNESOTA MINING & MFG) 19 October 1994 cited in the application see claim 1 --- -/-- | 1 |



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

25 January 1999

Date of mailing of the international search report

05/02/1999

Name and mailing address of the ISA

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Authorized officer

Niaounakis, M

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US 98/12180

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| A | WO 94 21741 A (MINNESOTA MINING & MFG) 29 September 1994 cited in the application see claims 1,4-6 ----- | 1 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 98/12180

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|---|---|---------------------|----------------------------|---------------------|
| US 4778253 | A | 18-10-1988 | JP 61223716 A | 04-10-1986 |
| | | | DE 3602723 A | 02-10-1986 |
| ----- | | | | |
| EP 0620259 | A | 19-10-1994 | CA 2115888 A | 16-10-1994 |
| | | | JP 6306346 A | 01-11-1994 |
| ----- | | | | |
| WO 9421741 | A | 29-09-1994 | CA 2157404 A | 29-09-1994 |
| | | | DE 69410999 D | 16-07-1998 |
| | | | EP 0690896 A | 10-01-1996 |
| | | | ES 2117788 T | 16-08-1998 |
| | | | JP 8508216 T | 03-09-1996 |
| | | | CA 2180434 A | 03-08-1995 |
| | | | CN 1139947 A | 08-01-1997 |
| | | | EP 0742814 A | 20-11-1996 |
| | | | JP 9508431 T | 26-08-1997 |
| | | | WO 9520635 A | 03-08-1995 |
| ----- | | | | |

PATENT COOPERATION TREATY

PCT

REC'D 21 SEP 2000

WIPO PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

| | | | |
|--|--|---|--|
| Applicant's or agent's file reference 992665wo Me/gn | | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/US98/12180 | International filing date (day/month/year) 22/06/1998 | Priority date (day/month/year) 22/06/1998 | |
| International Patent Classification (IPC) or national classification and IPC C09J163/00 | | | |
| Applicant MINNESOTA MINING AND MANUFACTURING COMPANY et al. | | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

| | |
|---|--|
| Date of submission of the demand 22/12/1999 | Date of completion of this report 19.09.2000 |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized officer Ramos Flores. C Telephone No. +49 89 2399 8310  |

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US98/12180

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-37 as originally filed

Claims, No.:

1-10 with telefax of 29/08/2000

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------------------------|------|--------|------|
| Novelty (N) | Yes: | Claims | 1-10 |
| | No: | Claims | |
| Inventive step (IS) | Yes: | Claims | |
| | No: | Claims | 1-10 |
| Industrial applicability (IA) | Yes: | Claims | 1-10 |
| | No: | Claims | |

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US98/12180

2. Citations and explanations

see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US98/12180

1. Reference is made to the following documents:
D1: DATABASE WPI Week 9135 Derwent Publications Ltd., London, GB; AN 91-256733 XP002090928 & JP 03 167283 A, 19 July 1991
D2: US-A-4 778 253 (SIGA NAOHITO ET AL) 18 October 1988
D3: EP-A-0 620 259 (MINNESOTA MINING & MFG) 19 October 1994 cited in the application
D4: WO 94 21741 A (MINNESOTA MINING & MFG) 29 September 1994 cited in the application
2. Claims 5-7 define a thermosettable adhesive by way of its preparation procedure, i.e. these claims are "product-by-process" claims. It is pointed out that these claims are still directed to the product, i.e. the adhesive, as such. This class of claims is allowable only when the product cannot be defined with commonly used structural parameters. Since this is not the case in the present application it appears that these claims should be reformulated as "process-claims" in order to avoid unclarities (Art. 6 PCT).
3. The subject-matter claimed is new in view of the documents cited and thus meets the requirements of Art. 33(2) PCT.
4. Document D1 (closest prior art) discloses an adhesive comprising (i) 100 pbw of an epoxy resin, (ii) 1-50 pbw of a polyester, such as PMMA (polymethyl methacrylate), (iii) a curing agent, such as dicyandiamide, and (iv') 0.1-10 pbw of alumina.

The subject-matter claimed differs from D1 in that component (iv) has a "moisture content and/or the content of water of crystallization with respect to the mass of the hydroxides and/or hydroxy oxides of Al, Mg and/or Zr" of "less than 5 weight%".

There is no evidence on file showing that the above identified distinguishing feature brings about any technical effect. Thus the objective technical problem in view of D1 can only be regarded as to provide further thermosettable adhesives.

In this context it is noted that the application mentions that the content of less than

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US98/12180

5 weight % is essential in order to avoid the formation of bubbles and surface irregularities (see page 15, lines 25-29), however, there is no comparable evidence available showing that this is indeed achieved with this feature. Furthermore, it could be possible that this feature is implicitly disclosed in D1 (e.g. compounds used in the full text application). In any case at present no substantiating evidence for a technical effect is available and thus the objective technical problem can only be formulated as indicated above.

In view of this objective technical problem, it would have been obvious to use any hydroxides and/or hydroxyoxides of Al, Mg and/or Zr, including commercially available compounds, which apparently also fall within the terms as defined in the claims (see page 16, lines 5-11).

Hence, the requirements of Art. 33(3) PCT are not met.

5. The subject-matter claimed is industrially applicable.

PATENT CLAIMS

1. Thermosettable adhesive comprising a thermosettable polymer component, a
5 thermoformable polymer component, an effective amount of a heat-
activatable and/or photoactivatable curing system for curing the
thermosettable polymer component, and from 0.5 -20 wt.% with respect to
the mass of the thermosettable adhesive of one or more hydroxides and/or
hydroxyoxides of Al, Mg and/or Zr wherein the moisture content and/or the content
10 of water of crystallization with respect to the mass of the hydroxides and/or hy-
droxy oxides of Al, Mg and/or Zr is less than 5 weight%
2. Thermosettable pressure-sensitive adhesive according to claim 1.
3. Thermosettable adhesive according to any of claims 1-2 wherein the
thermoformable polymer component comprises one or more polyacrylates
15 and/or polyesters
4. Thermosettable adhesive according to any of claims 1-3 wherein the
thermosettable polymer component comprises one or more epoxy resins
and/or epoxy monomers or oligomers.
- 20 5. Thermosettable adhesive according to any of claims 1-4 which is obtainable
by photopolymerization of a precursor comprising
 - (i) from about 25 to 60 wt.% of a photopolymerizable, optionally partly
25 prepolymerized mixture comprising at least one acrylic acid ester of a non-
tertiary alcohol, and at least one reinforcing, copolymerizable monomer,
 - (ii) from about 8 to 60 wt % of one or more epoxy resins and/or epoxy
monomers or oligomers containing no photopolymerizable groups,
 - (iii) from 0 to about 15 wt % of one or more additional thermoformable
30 polymers selected from the group comprising polyvinylacetate,

poly(ethylene vinyl acetate), polyacetals, polyesters and/or
poly(caprolactones),

(iv) from about 0.1 to 10 wt.% of a heat-activatable curing system for the
epoxy component (ii),

5 (v) from about 0.005 to 3wt.% of a photoinitiator for the acrylate component
(i), and

(vi) from about 0.1 to 20 wt.% of one or more hydroxides and/or
hydroxyoxides of Al, Mg and/or Zr

10 wherein all weight percentages refer to the mass of the thermosettable
adhesive.

6. Thermosettable adhesive according to claim 5 wherein the acrylate
component (i) additionally comprises at least one hydroxy-substituted acrylic
15 ester of a non-tertiary alcohol.

7. Thermosettable adhesive according to any of claims 1-6 which is obtainable
by extrusion of a mixture comprising

20 (i) from about 2 to 80wt.% of one or more polyesters,

(ii) from about 5 to 80 wt.% of one or more epoxy resins and/or epoxy
monomers or oligomers,

(iii) from 0 to 15 wt.% of one or more additional thermoformable polymers
selected from the group comprising polyacrylate, polyvinylacetate,
25 poly(ethylene vinyl acetate), polyacetals and/or poly(caprolactones),

(iv) an effective amount of one or more heat-activatable and/or
photoactivatable curing systems for the epoxy component (ii),

v) from about 0.1 to 20 wt.% of one or more hydroxides and/or
hydroxyoxides of Al, Mg and/or Zr,

30

wherein the onset temperature of the curing reaction of the epoxy component (ii) is higher than the extrusion temperature and wherein all weight percentages refer to the mass of the thermosettable adhesive.

5 8. Thermosettable adhesive tape comprising at least one layer of a thermosettable adhesive according to any of claims 1-7 wherein such layer has at least one exposed surface and optionally comprises a backing.

9. Use of the thermosettable adhesive of any of claims 1-7 for melt sealing or
10 bonding applications.

10. A thermosettable adhesive comprising

(i) a thermosettable polymer selected from the group consisting of epoxy resins, epoxy monomers and epoxy oligomers;

15 (ii) a thermoformable polymer selected from polyacrylate homopolymers and copolymers;

(iii) an effective amount of curing agent for the thermosettable polymer; and

(iv) 0.1 to 20 weight percent of a metal hydroxide selected from the group consisting of aluminum hydroxides and aluminum hydroxyoxides,

20 "wherein the moisture content and/or the content of water of crystallization with respect to the mass of the hydroxides and/or hydroxy oxides of Al, Mg and/or Zr is less than 5 weight%"